

In the claims:

24. (CURRENTLY AMENDED) A coreless transformer [[for]] that is configured to pass[[ing]] a low frequency band waveform having a frequency of between about 10kHz and 2MHz, which transformer comprises:

a primary circuit and a secondary circuit that are electrically isolated from one another and each have[[ing]] a number plurality of turns, said primary and secondary circuits being configured and arranged to form such that said transformer comprises a plurality of electrically conducting layers on a substrate, each said layer being arranged to provide having alternating primary and secondary conductors that are disposed adjacent one another,

wherein said adjacent primary and secondary conductors provide, in the absence of a ferromagnetic pathway, a local magnetic flux linkage between them, and there being a combination of

said plurality of turns and said plurality of layers respectively comprise a number of turns and a number of layers that are sufficient to obtain provide a transformer action [[for]] that enables the passing of said waveform from said primary circuit to said secondary circuit.

25. (CURRENTLY AMENDED) A coreless transformer as claimed in claim 24, wherein each said layer extends radially outwardly from a centre of said transformer.

26. (CURRENTLY AMENDED) A coreless transformer as claimed in claim 24, wherein each said layer forms an annulus around an axis of said transformer.

27. (PREVIOUSLY PRESENTED) A coreless transformer as claimed in claim 24, wherein separation between said primary and secondary conductors is between about 0.02mm and 0.075mm.

28. (PREVIOUSLY PRESENTED) A coreless transformer as claimed in claim 24, wherein the separation between each layers is between about 0.02mm and 0.2mm.

29.. (PREVIOUSLY PRESENTED) A coreless transformer as claimed in claim 24, wherein there are at least ten layers.

30. (CURRENTLY AMENDED) An electrical circuit comprising a coreless transformer, said transformer comprising: [[having]]  
a primary circuit and a secondary circuit that are  
electrically isolated from one another and each have[[ing]]  
a number plurality of turns, said primary and secondary circuits  
being configured and arranged to form such that said transformer  
comprises a plurality of electrically conducting layers on a  
substrate, each said layer having being arranged to provide  
alternating primary and secondary conductors that are disposed  
adjacent one another,

wherein said adjacent primary and secondary conductors  
provide, in the absence of a ferromagnetic flux linkage pathway,  
a local magnetic flux linkage between them, and there being a  
combination of

said plurality of turns and said plurality of layers  
respectively comprise a number of turns and a number of layers  
that are sufficient to obtain provide a transformer action  
[[for]] that enables the passing of said waveform from said  
primary circuit to said secondary circuit.

31. (PREVIOUSLY PRESENTED) A [[DSL]] digital subscriber line modem comprising an electrical circuit as claimed in claim 30.

32. (CURRENTLY AMENDED) A digital subscriber line (DSL) modem comprising a coreless line interface transformer having a primary circuit for coupling to a transmission line and a secondary circuit for outputting a signal transmitted over said transmission line, wherein each said circuit [[being]] is formed of a continuous electrically conductive material; and in which the primary circuit and the secondary circuit are substantially parallel and [[are]] in substantially the same plane; said primary and secondary circuits each include a plurality of turns and are configured and arranged to form a plurality of electrically conducting layers on a substrate; each said layer includes alternating primary and secondary conductors disposed adjacent to one another to provide, in the absence of a ferromagnetic flux linkage pathway, a local magnetic flux linkage between them; and said plurality of turns and said plurality of layers respectively comprise a number of turns and a number of layers that are sufficient to provide a transformer action that enables the passing of said waveform from said primary circuit to said secondary circuit.

33. (CURRENTLY AMENDED) A DSL modem as claimed in claim 32, wherein each layer of said primary circuit and said secondary circuit are in the form comprise substantially parallel spirals of the conductive material in substantially the same plane.

34. (PREVIOUSLY PRESENTED) A DSL modem as claimed in claim 33, wherein the spiral is substantially circular, elliptical, square, rectangular, oval or non-regular.

35. (PREVIOUSLY PRESENTED) A DSL modem as claimed in claim[[s]] 33, in which the spiral conforms substantially to a spiral formed by the polar equation  $r(\theta) = \alpha\theta$ , where  $\theta$  is the angle in polar coordinates,  $r$  is the radius and  $\alpha$  is a constant that regulates the number of turns and the spacing.

36. (PREVIOUSLY PRESENTED) A DSL modem as claimed in claim 32, wherein a number of turns of each circuit is at least 10.

37. (CANCELLED)

38. (CURRENTLY AMENDED) A DSL modem as claimed in claim [[37]] 32, wherein said layers are substantially parallel.

39. (PREVIOUSLY PRESENTED) A DSL modem as claimed in claim 38, wherein the separation between said layers is not more than 0.5mm.

40. (CURRENTLY AMENDED) A DSL modem as claimed in claim [[37]] 32, wherein the primary circuit[[s]] of a said layer is [[are]] connected in parallel or in series with the primary circuit of [[one]] another said layer, and the secondary circuit[[s]] of a said layer is [[are]] connected in parallel or series with the secondary circuit of [[one]] another said layer.

41. (CURRENTLY AMENDED) A DSL modem as claimed in claim [[37]] 32, wherein there are at least 10 layers.

42. (CURRENTLY AMENDED) A DSL modem as claimed in claim [[37]] 32, having an aspect ratio defined as diameter to width of 1:5 or more.

43. (CURRENTLY AMENDED) A DSL modem as claimed in claim 32, wherein said line interface transformer does not comprise a ferromagnetic core.

44. (CURRENTLY AMENDED) For use in a DSL modem, a line interface transformer having a primary circuit for coupling to a transmission line and a secondary circuit for outputting a signal transmitted over said transmission line, wherein each said circuit [[being]] is formed of a continuous electrically conductive material; and in which the primary circuit and the secondary circuit are substantially parallel and [[are]] in substantially the same plane; said primary and secondary circuits each include a plurality of turns and are configured and arranged to form a plurality of electrically conducting layers on a substrate; each said layer includes alternating primary and secondary conductors disposed adjacent to one another to provide, in the absence of a ferromagnetic flux linkage pathway, a local magnetic flux linkage between them; and said plurality of turns and said plurality of layers respectively comprise a number of turns and a number of layers that are sufficient to provide a transformer action that enables the passing of said waveform from said primary circuit to said secondary circuit.

45. (CANCELLED)

46. (CANCELLED)